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PATENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellant: William C. Phillips; Alex C. Toy; Charles R. Lewis, Jr.; Mark E. Schommer; John W. Forsberg; David P. Olson Confirmation No. 9353

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Group Art Unit: 3766

Docket No.: 1023-292US01

Title: NEUROSTIMULATOR PROGRAMMER WITH INTERNAL ANTENNA

CERTIFICATE UNDER 37 CFR 1.8 I hereby certify that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office on March 25, 2008.

By:

Name: Shirley A. Betlach

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

This is an appeal from the Office Action mailed on October 25, 2007, which rejected claims 1, 2, 4-9, 11-13, 15-20, and 22-40 for at least the second time. The Notice of Appeal was filed on January 25, 2008. The period of response for filing this Appeal Brief runs through March 25, 2008.

Please charge Deposit Account No. 50-1778 in the amount of \$510.00 to cover the required fee for filing this Appeal Brief. Please charge any additional fees that may be required or credit any overpayment to Deposit Account No. 50-1778.

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REAL PARTY IN INTEREST

The Real Party in Interest is Medtronic, Inc. of Minneapolis, Minnesota, the assignee of record.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences for the above-referenced patent application.

STATUS OF CLAIMS

Claims 1, 2, 4-9, 11-13, 15-20, and 22-40 are pending and are the subject of this Appeal. The pending claims 1, 2, 4-9, 11-13, 15-20, and 22-40 are set forth in Appendix A.

Claims 1, 2, 4-9, 11, 13, 15-20, 22-28, and 30-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,249,703 to Stanton et al. (hereinafter "Stanton") in view of U.S. Patent Application Publication No. 2002/0030630 to Maeda et al. (hereinafter "Maeda").

Claims 12 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stanton in view of Maeda as applied to claims 1, 2, 4-9, 11, 13, 15-20, 22-28, and 30-40, in further view of U.S. Patent Application Publication No. 2002/0107476 to Mann et al. (hereinafter "Mann").

Claims 39 and 40 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

Claims 3, 10, 14 and 21 were previously canceled.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Office Action mailed October 25, 2007, from which this Appeal has been made.

SUMMARY OF CLAIMED SUBJECT MATTER

In general, the invention relates to a medical device programmer¹ that includes an internal antenna² and a battery bay³, in which batteries may be mounted⁴. The arrangement between the antenna and battery bay may help the programmer maintain a smaller size, and may help reduce external magnetic interference to the internal antenna, thereby enhancing noise immunity.⁵

Independent claim 1 is directed to a programmer⁶ for a medical device⁷. The programmer comprises an internal antenna⁸ mounted within a programmer housing⁹, and a battery bay¹⁰. The internal antenna defines an aperture¹¹, and the battery bay extends into the programmer¹² in substantial alignment with the aperture¹³. In addition, independent claim 1 requires that the battery bay extends at least partially into the aperture.¹⁴

Independent claim 19 is directed to a programmer¹⁵ for a medical device¹⁶. The programmer comprises a programmer housing¹⁷, an internal antenna¹⁸ mounted within the programmer housing¹⁹, and a battery bay²⁰ formed within the programmer housing²¹. The internal antenna defines an aperture²², and the battery bay is aligned substantially concentrically with the aperture²³. In addition, independent claim 19 requires that the battery bay extends at least partially into the aperture.²⁴

¹ See, e.g., Appellant's originally-filed disclosure at p. 2, ll. 10-11, p. 15, l. 26, and programmer 20 in FIG. 4.

² See, e.g., *id.* at p. 2, ll. 17-18, p. 22, ll. 26-31, and antenna 32 in FIG. 11.

³ See, e.g., *id.* at p. 3, ll. 6-7, p. 23, ll. 1-4, and battery bay 108 in FIG. 11.

⁴ *Id.*

⁵ See, e.g., *id.* at p. 2, ll. 29-30 and p. 23, ll. 22-26.

⁶ See, e.g., *id.* at p. 2, ll. 10-11, p. 15, l. 26, and programmer 20 in FIG. 4.

⁷ See, e.g., *id.* at p. 9, ll. 10-11 and implantable medical device 12 in FIG. 1.

⁸ See, e.g., *id.* at p. 2, ll. 17-18, p. 22, ll. 26-31, and antenna 32 in FIG. 11.

⁹ See, e.g., *id.* at p. 11, ll. 20-21 and housing 47 in FIG. 4.

¹⁰ See, e.g., *id.* at p. 3, ll. 6-7, p. 23, ll. 1-4, and battery bay 108 in FIG. 11.

¹¹ See, e.g., *id.* at p. 22, ll. 30-31 and aperture 112 in FIG. 11.

¹² See, e.g., *id.* at p. 22, ll. 5-6 and battery bay 108 in FIG. 11.

¹³ See, e.g., *id.* at FIG. 15.

¹⁴ See, e.g., *id.* at p. 23, ll. 3-4, p. 25, ll. 27-29, and FIG. 15.

¹⁵ See, e.g., *id.* at p. 2, ll. 10-11, p. 15, l. 26, and programmer 20 in FIG. 4.

¹⁶ See, e.g., *id.* at p. 9, ll. 10-11 and implantable medical device 12 in FIG. 1.

¹⁷ See, e.g., *id.* at p. 15, ll. 26-27 and housing 47 in FIG. 4.

¹⁸ See, e.g., *id.* at p. 2, ll. 17-18, p. 22, ll. 26-31, and antenna 32 in FIG. 11.

¹⁹ See, e.g., *id.* at p. 11, ll. 20-21 and housing 47 in FIG. 4.

²⁰ See, e.g., *id.* at p. 3, ll. 6-7, p. 23, ll. 1-4, and battery bay 108 in FIG. 11.

²¹ See, e.g., *id.* at p. 22, ll. 1-2 and FIG. 15.

²² See, e.g., *id.* at p. 22, ll. 30-31 and aperture 112 in FIG. 11.

²³ See, e.g., *id.* at FIG. 15.

²⁴ See, e.g., *id.* at p. 23, ll. 3-4, p. 25, ll. 27-29, and FIG. 15.

Independent claim 37 is directed to a programmer²⁵ for a medical device²⁶. The programmer comprises a first housing member²⁷, a first circuit board²⁸ within the first housing member²⁹, an internal antenna³⁰ that defines an aperture³¹ and is mounted to the first circuit board³², a battery bay³³ formed in the first housing member adjacent the first circuit board³⁴, an access opening³⁵ in the first housing member to gain access to the battery bay for placement of batteries in the battery bay, a second circuit board³⁶ disposed over the first circuit board³⁷ within the first housing member, and a second housing member³⁸ disposed over the second circuit board to substantially enclose the first and second circuit boards³⁹. The battery bay extends into the programmer in substantial alignment with the aperture of the internal antenna⁴⁰, and is aligned substantially concentrically with the aperture⁴¹. In addition, the battery bay extends at least partially into the aperture.⁴²

Dependent claims 8 and 26, which depends from claims 1 and 19, respectively, specify that the internal antenna⁴³ is mounted to the first circuit board⁴⁴ on a side of the first circuit board opposite the second circuit board⁴⁵, and a display⁴⁶ is mounted to the second circuit board on a side of the second circuit board opposite the first circuit board.⁴⁷ As provided in Appellant's disclosure, displacing the antenna and display from each other in the manner recited by claim 8

²⁵ See, e.g., *id.* at p. 2, ll. 10-11, p. 15, l. 26, and programmer 20 in FIG. 4.

²⁶ See, e.g., *id.* at p. 9, ll. 10-11 and implantable medical device 12 in FIG. 1.

²⁷ See, e.g., *id.* at p. 15, ll. 29-30 and bottom housing cover 98 in FIGS. 4 and 11.

²⁸ See, e.g., *id.* at p. 20, ll. 7-8 and antenna circuit board 106 in FIGS. 8 and 13.

²⁹ See, e.g., *id.* at FIG. 8, illustrating antenna circuit board 106 within top housing cover 96.

³⁰ See, e.g., *id.* at p. 2, ll. 17-18, p. 22, ll. 26-31, and antenna 32 in FIG. 11.

³¹ See, e.g., *id.* at p. 22, ll. 30-31 and aperture 112 in FIG. 11.

³² See, e.g., *id.* at p. 22, ll. 29-31 and FIGS. 11-13.

³³ See, e.g., *id.* at p. 3, ll. 6-7, p. 23, ll. 1-4, and battery bay 108 in FIG. 11.

³⁴ See, e.g., *id.* at p. 22, ll. 1-2 and bottom cover 98 defining battery bay 108 in FIG. 10.

³⁵ See, e.g., *id.* at p. 23, ll. 5-7 and FIG. 11.

³⁶ See, e.g., *id.* at p. 19, ll. 7-8, and display circuit board 104 in FIGS. 8 and 13.

³⁷ See, e.g., *id.* at p. 22, ll. 16-17 and display circuit board 104 placed over antenna circuit board 106 in FIG. 13.

³⁸ See, e.g., *id.* at p. 15, ll. 29-30, and top housing cover 96 in FIGS. 4 and 11.

³⁹ See, e.g., *id.* at p. 22, ll. 17-19.

⁴⁰ See, e.g., *id.* at p. 22, ll. 1-8 and FIG. 15.

⁴¹ See, e.g., *id.* at FIG. 15.

⁴² See, e.g., *id.* at p. 23, ll. 3-4, p. 25, ll. 27-29, and FIG. 15.

⁴³ See, e.g., *id.* at p. 22, ll. 29-30, and internal antenna 32 in FIGS. 13-14.

⁴⁴ See, e.g., *id.* at p. 22, ll. 29-30, and internal antenna 32, antenna circuit board 106 in FIGS. 13-14.

⁴⁵ See, e.g., *id.* at FIGS. 13-14, illustrating internal antenna 32 mounted to antenna circuit board 106 on a side opposite the display circuit board 104.

⁴⁶ See, e.g., *id.* at p. 20, ll. 30-31 and display 28 in FIG. 13.

⁴⁷ See, e.g., *id.* at FIGS. 13-14, illustrating display 28 mounted to display circuit board 104 on a side opposite the antenna circuit board 106.

helps reduce the effects of electrical and electromagnetic interference produced by the display on the telemetry performance.⁴⁸

Dependent claims 35 and 36, which depend from independent claims 1 and 19, respectively, specify that the internal antenna is mounted to a circuit board⁴⁹, and a space between the antenna and the circuit board is substantially filled by the battery bay extending into the antenna aperture.⁵⁰ As provided in Appellant's disclosure, this arrangement between the battery bay and internal antenna helps the programmer maintain a smaller size, and enables batteries placed in the battery bay to help reduce external magnetic interference to the internal antenna by providing a radiofrequency load to the internal antenna, thereby enhancing noise immunity.⁵¹

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Appellant submits the following grounds of rejection to be reviewed on Appeal:

1. The rejection of claims 1, 2, 4-9, 11, 13, 15-20, 22-28, and 30-40 under 35 U.S.C. § 103(a) as being unpatentable over Stanton in view of Maeda;
2. The rejection of claims 12 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Stanton in view of Maeda in further view of Mann; and
3. The rejection of claims 39 and 40 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

ARGUMENT

Appellant respectfully traverses the current rejections advanced by the Examiner, and requests reversal of such rejections by the Board of Patent Appeals based on the arguments below.

⁴⁸ See, e.g., *id.* at p. 24, ll. 17-20.

⁴⁹ See, e.g., *id.* at p. 22, ll. 29-31.

⁵⁰ See, e.g., *id.* at p. 23, ll. 21-22.

⁵¹ See, e.g., *id.* at p. 23, ll. 22-26.

First Ground of Rejection Under Appeal

Claims 1, 2, 4-9, 11, 13, 15-20, 22-28, and 30-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stanton in view of Maeda. Appellant respectfully submits that the rejection of claims 1, 2, 4-9, 11, 13, 15-20, 22-28, and 30-40 was in error and should be reversed. Stanton in view of Maeda fails to disclose each and every element of Appellant's claims, and accordingly, the Examiner's rejection of Appellant's claims is improper and should be reversed.

Claims 1, 2, 4-9, 11, 13, 15-20, 22-28, 30-34, 37, and 38

Independent claim 1 is directed to a programmer for a medical device, where the programmer comprises an internal antenna mounted within a programmer housing, and a battery bay that extends into the programmer in substantial alignment with an aperture defined by the internal antenna. Claim 1 requires the battery bay to extend at least partially into the aperture defined by the internal antenna. Stanton in view of Maeda fails to disclose or suggest each and every element of independent claim 1. For example, Stanton in view of Maeda fails to disclose or suggest a medical device programmer that includes an internal antenna defining an aperture and a battery bay in substantial alignment with the aperture, where the battery bay extends at least partially into the aperture.

In support of the rejection of claim 1 as being unpatentable over Stanton in view of Maeda, the Examiner acknowledged that Stanton fails to disclose a programmer including an internal antenna defining an aperture and a battery bay in substantial alignment with the aperture.⁵² The Examiner looked to Maeda to cure this deficiency in Stanton. In particular, the Examiner found that FIG. 3 of Maeda discloses a telemetric communication device that includes a "substantially closed loop antenna 2" that defines a substantially central aperture and a battery 1 that is positioned such that it is in substantial alignment with the aperture. The Examiner reasoned that FIG. 3 of Maeda illustrates an exploded view of the communication device, and when the communication device shown in FIG. 3 of Maeda is assembled, the battery 1 extends "at least partially into the aperture formed by internal antenna 2."⁵³ The Examiner reasoned that "the battery 1 of Maeda must extend at least partially into the aperture formed by antenna 2"

⁵² Office Action dated October 25, 2007 at p. 5.

⁵³ *Id.* at pp. 2-6.

because Maeda failed to disclose otherwise.⁵⁴ Thus, the Examiner is relying on Maeda's silence as to an element required by Appellant's claims to find that the element exists.

Appellant respectfully disagrees with the Examiner's analysis. The Examiner has applied erroneous logic to find that Maeda discloses a required element of Appellant's independent claim 1. According to the Examiner, the absence of an explicit disclosure in Maeda that the battery 1 does not extend into an aperture defined by an antenna is sufficient to support the conclusion that the battery 1 extends into an aperture defined by the antenna. However, the Examiner failed to provide any support within the cited art to support the conclusion that the battery 1 of the Maeda device must extend at least partially into an aperture formed by an antenna. Maeda does not even disclose that the antenna 2 defines an aperture, much less the arrangement between the battery 1 and the antenna 2.

Given the lack of disclosure in Maeda, the Examiner appears to be relying on an improper finding of an inherent disclosure in Maeda to support the rejection of claim 1. The fact that a certain characteristic may be present in the prior art is not sufficient to establish the inherency of that result or characteristic.⁵⁵ The Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.⁵⁶ No reasonable support has been provided for the determination that the battery 1 necessarily extends at least partially into an aperture defined by the antenna 2 based on FIG. 3. Rather, other configurations between the battery 1 and antenna 2 are just as likely in view of the lack of description provided by the Maeda reference. Accordingly, Appellant submits that the allegedly inherent characteristic does not necessarily flow from the teachings of Maeda, and that the Examiner has relied on an improper finding of inherent disclosure in Maeda to reject independent claim 1.

FIG. 3 of Maeda does not disclose or suggest a battery bay that extends at least partially into an aperture defined by an internal antenna, as suggested by the Examiner. According to Maeda, FIG. 3 (copied below) shows a schematic view of an antenna mounted in a portable radio communication device.⁵⁷ The communication device includes a center-fed loop

⁵⁴ *Id.* at p. 3 (emphasis added).

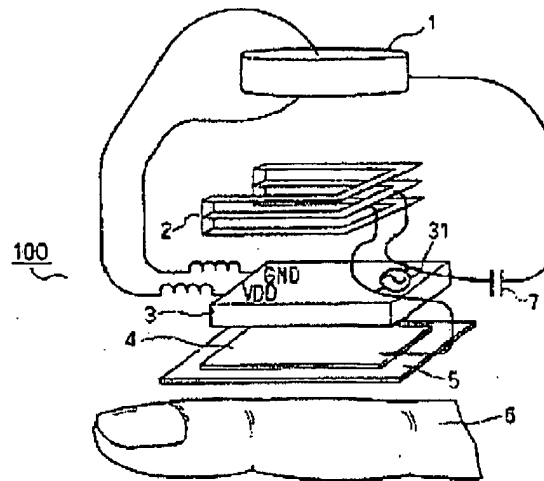
⁵⁵ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ.2d 1955, 1957 (Fed. Cir. 1993); MPEP § 2112.

⁵⁶ *Ex parte Levy*, 17 USPQ.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original); MPEP 2112.

⁵⁷ Maeda at paragraph [0012].

antenna 2 that is a magnetic field-type antenna and a dipole, electric field-type antenna, which is defined by a cover of battery 1, a shield plate 4, and a finger 6 of a human being.⁵⁸

FIG. 3



At no time does Maeda disclose that FIG. 3 illustrates an exploded view of a communication device. Even assuming FIG. 3 shows an exploded view of a device, Maeda completely lacks any written description to support the Examiner's position that Maeda discloses a device in which the battery 1 extends at least partially into an aperture defined by an antenna 2. Maeda does not describe the physical relationship between the battery 1 and antenna 2 when the device is assembled. Furthermore, FIG. 3 does not provide assembly lines that indicate or even suggest a physical arrangement between the battery 1 and antenna 2 when the communication device is assembled. Accordingly, the Examiner appears to lack any reasonable basis for asserting that Maeda teaches a specific relationship between the battery 1 and antenna 2.

Maeda fails to disclose, either explicitly or implicitly, that the battery 1, which is a part of a different type of antenna than antenna 2, extends at least partially into an aperture defined by the antenna 2 when assembled. Maeda neither discusses the size of the antenna 2 nor the aperture (which Appellant disputes is even an aperture) defined by such the antenna. Based on the disclosure provided by Maeda, it is unclear whether the alleged aperture defined by the antenna 2 in Maeda would be large enough to allow the battery 1 to extend at least partially into the aperture. In fact, based on FIG. 3, Appellant submits that even if the antenna 2 defines an

⁵⁸ *Id.* at paragraphs [0026] and [0033].

aperture, the battery 1 appears to be too large to extend at least partially into any aperture defined by the antenna 2.

Maeda fails to disclose or suggest that an arrangement in which the battery 1 extends at least partially into an aperture defined by the antenna 2 provides an advantage or that the communication device must include a battery extending at least partially into an aperture defined by the antenna. Given the lack of disclosure in Maeda, with the minimal details offered by Maeda, it is unclear whether the arrangement between the battery and antenna suggested by the Examiner would even facilitate proper operation of the Maeda communication device.

The Examiner also stated that "it would have been obvious to one having ordinary skill in the art to try the finite number of different configurations of antenna and battery described and illustrated by Maeda in order to ascertain the optimum characteristics for the device."⁵⁹ The Examiner appears to be applying an improper "obvious to try" rationale to support the rejection of independent claim 1. An "obvious to try" rationale is improper where the prior art gives no indication of which parameters are critical.⁶⁰ In the present case, neither Maeda nor Stanton even discuss the configuration between an antenna and a battery, much less gives an indication of which parameters relating to the configuration of the antenna 2 and battery 1 are critical to the operation of the Maeda communication device. More importantly, neither Maeda nor Stanton recognizes that the configuration between a battery bay and an internal antenna may provide any advantages.

Contrary to the Examiner's statement in support of the rejection of independent claim 1, there is no apparent reason for one skilled in the art, based on the Maeda and Stanton disclosures, to "ascertain the optimum characteristics for the device" by modifying the configuration between an antenna and battery. Maeda only illustrates one configuration of an antenna and battery, whereby the battery does not extend at least partially into an aperture defined by the antenna. Moreover, Maeda and Stanton do not disclose how the configuration between the battery bay and antenna affect the "characteristics of the device," nor do Maeda and Stanton suggest that the arrangement between the battery 1 and antenna 2 is a critical parameter for the communication device.

⁵⁹Office Action dated October 25, 2007 at p. 5, item 10.

⁶⁰See, e.g., M.P.E.P. 214 5, citing *In re O'Farrell*, 853 F.2d 894, 903, 7 U.S.P.Q.2d 1673, 1681 (Fed. Cir. 1988).

The Examiner failed to meet the burden of demonstrating that it was obvious to try various configurations between an antenna and battery to arrive at Appellant's claimed invention. For example, the Examiner failed to articulate reasons that, at the time of the invention, there was a recognized problem or need in the art, or that there were a finite number of identified, predictable solutions to the recognized problem or need.⁶¹ For at least these reasons, the Examiner's proposed "obvious to try" rationale is improper, and the rejection of the claims should be reversed.

It is also unclear why one skilled in the art would have looked to Maeda to modify the Stanton medical device programmer. The Examiner reasoned that it would have been obvious to one having ordinary skill in the art at the time of the invention to combine Stanton with Maeda "in order to facilitate a more isotropic configuration of the telemetric energy."⁶² The Examiner offered no other apparent reason for modifying the Stanton medical device programmer to include the communication device disclosed by Maeda.

Appellant agrees that Maeda et al. teaches a communication device that combines two types of antennas, i.e., a center-fed, magnetic field-type loop antenna 2 and an electric field-type dipole antenna in order to make the directivity of the antenna more isotropic.⁶³ However, Appellant respectfully submits that the Examiner's proposed reason for modifying the Stanton medical device programmer in view of Maeda is insufficient to support the combination of Maeda and Stanton. Instead, the Examiner appears to have relied on impermissible hindsight to propose modifying Stanton to include the communication device of Maeda.

As an initial matter, Appellant notes that the cited references fail to disclose or even suggest how a more isotropic configuration of telemetric energy provides any advantages to the medical device programmer of Stanton. Accordingly, the Examiner's proposed reason for modifying Stanton in view of Maeda lacks any rational underpinning, e.g., lacks any explanation of why one skilled in the art at the time the claimed invention was made would have looked to modify Stanton to include the Maeda communication device including two antennas so as to make the directivity of the device more isotropic. Instead, the reason for modification proposed

⁶¹ M.P.E.P. 2143(E).

⁶² *Id.* at p. 3, item 4 and p. 5, item 10.

⁶³ Maeda at paragraph [0033].

by the Examiner is merely a conclusory statement pulled directly out of Maeda and lacks a reasonable relationship to the proposed modification of the Stanton programmer.

If the Examiner is relying on scientific theory to support the conclusion that a more isotropic configuration of telemetric energy is a desirable modification to the Stanton medical device programmer, the Examiner must provide evidentiary support for the existence and meaning of that theory.⁶⁴ Similarly, if the Examiner is relying on official notice to support the assertion that it is well known that a more isotropic configuration of telemetric energy is a reasonable rationale for modifying Stanton in view of Maeda, Appellant respectfully submits that the Office Action is relying on an improper Official Notice and traverses the Official Notice. M.P.E.P. § 2144.03 provides guidance as to when it is appropriate to assert that facts are well known. In particular, M.P.E.P. § 2144.03 states that, "[i]t would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known." Appellant submits that the assertion presented by the Examiner that a more isotropic configuration of telemetric energy is a valid apparent reason to combine Stanton with Maeda is not capable of instant and unquestionable demonstration as being well-known.

Independent claims 19 and 37 each require an internal antenna and a battery bay that is aligned substantially concentrically with an aperture defined by the internal antenna, where the battery bay extends at least partially into the aperture. For at least the reasons given above with respect to independent claim 1, the rejection of independent claims 19 and 37 as unpatentable over Stanton in view of Maeda is improper and should be reversed.

Claims 2, 4, 13, 15-18, and 38 depend from independent claim 1, claims 20, 22, and 30-34 depend from independent claim 19. For at least the reasons give above with respect to the independent claims, the rejection of dependent claims 2, 4, 13, 15-18, 20, 22, 30-34, and 38 is improper and should be reversed.

⁶⁴ M.P.E.P. § 2144.02, citing *In re Grose*, 592 F.2d 1161, 201 USPQ 57 (CCPA 1979)

Dependent Claims 5-9, 11 and 23-29

Stanton in view of Maeda also fails to disclose or suggest each and every element of Appellant's dependent claims 5-9 and 11, which depend from independent claim 1, and dependent claims 23-29, which depend from independent claim 19. Appellant's claims 5 and 23 each recite a programmer including a first circuit board and a second circuit board. In support of the rejection of claims 5 and 23, the Examiner characterized the integrated circuit 50 in the Stanton reference as a first circuit board and the transmitter circuit 52 as a second circuit board.⁶⁵ As acknowledged by the Office Action, Stanton does not state that the transmitter circuit 52 is disposed on a circuit board that is separate from the integrated circuit 50. However, the Examiner took the position that "it is well known in the art to dispose circuits of different configurations on circuit boards, as can be seen from the specification of Stanton relating to integrated circuit 50 disposed on a circuit board."⁶⁶

Appellant respectfully disagrees with the Examiner's conclusion of obviousness. Even if Stanton discloses that the integrated circuit 50 is disposed on a circuit board, an assertion with which Appellant does not necessarily agree, it does not necessarily follow that the transmitter circuit 52 is disposed on a separate circuit board. The Examiner's reliance on knowledge in the art is erroneous. It is unclear how any disclosure within Stanton that the integrated circuit 50 is disposed on a circuit board necessarily demonstrates that it is well known to dispose circuits of different configurations on different circuit boards, as apparently proposed by the Office Action.

Claims 6-9 and 11 depend directly or indirectly from claim 5, and claims 24-29 depend directly or indirectly from claim 23, and are allowable for at least the reasons given above with respect to claims 5 and 23. Appellant notes that claims 6-9, 11, and 24-29 recite additional limitations that are patentable over Stanton in view of Maeda.

Appellant's claims 8 and 26, which depend from claims 5 and 23, respectively, recite a programmer in which an internal antenna is mounted to the first circuit board, and a display is mounted to the second circuit board. Appellant's claims 9 and 27, which depend from claims 8 and 26, respectively, specify that the first circuit board includes telemetry circuitry and the second circuit board includes control circuitry to control a display and the telemetry circuitry.

⁶⁵ Office Action dated October 25, 2007 at p. 6, item 13.

⁶⁶ *Id.*

In support of the rejection of claims 8, 9, 26, and 27, Examiner found that Stanton discloses that an "internal antenna may be mounted on a circuit board 52 controlling telemetric operations while a display 32 may be disposed on a separate circuit board 50," and relied on FIG. 7, and column 8, lines 23-33 of Stanton as teaching the elements of claims 8 and 26. Appellant submits that the Examiner appears to have misinterpreted the content of Stanton. FIG. 7 of Stanton is a schematic diagram of circuitry within a programmer, and does not illustrate circuit boards. Stanton does not disclose that the transmitter circuit 52 and LED 32, which the Examiner characterized as a display, are disposed on separate circuit boards, as required by claims 8, 9, 26, and 27.

At column 8, lines 23-33, Stanton states that:

As shown in FIG. 7, Beeper Switch 18 disposed within the battery compartment of programmer 10 is a three-position switch for enabling the user to turn the beeper off or select one of two resistors (R1 and R2 in FIG. 7) for volume settings for beeper 58. Parameter Select Switch 17, also disposed within the battery compartment, is a three-position switch for defining the function of INC and DEC keys 19 and 20. Depending upon the position of switch 17, INC and DEC keys 19 and 20 function to increase and decrease, respectively, the amplitude, rate, or pulse width of stimulating pulses delivered by implanted device 44.

This cited passage of Stanton does not disclose that the LED 32 and the transmitter circuit 52 are mounted to different circuit boards or that the transmitter circuit 52 is mounted to a side of the first circuit board opposite a second circuit board on which the LED 32 is mounted, and the LED 32 is mounted to a side of the second circuit board opposite the first circuit board, as required by Appellant's claims 8 and 26. The Examiner appears to have disregarded the claim limitations regarding the specific sides of the circuit boards to which the internal antenna and display are mounted.

Claims 9 and 27 further specify that the second circuit board, to which a display is mounted, includes control circuitry to control both a display and telemetry circuitry. The Examiner failed to meet the burden of demonstrating how Stanton in view of Maeda discloses this particular arrangement of first and second circuit boards, a display, control circuitry, and telemetry circuitry. To the extent the Examiner provided support for the rejection of claims 9 and 27, the Examiner cited to FIG. 7 and column 8, lines 23-33 of Stanton. However, as established above, FIG. 7 is merely an illustration of circuitry, and does not illustrate circuit boards. In

addition, column 8, lines 23-33 of Stanton appears to be irrelevant to the recited elements of Appellant's claims 9 and 27.

For at least these reasons, the Examiner's rejection of claims 5-9, 11 and 23-29 was erroneous and should be reversed.

Dependent Claims 35 and 36

Stanton in view of Maeda also fails to disclose or suggest the elements of claims 35 and 36. Claim 35, which depends from independent claim 1, and claim 36, which depends from independent claim 19, specify that an antenna is mounted to a circuit board, and a space between the internal antenna and the circuit board is substantially filled by the battery bay extending into the aperture defined by the internal antenna.

As an initial matter, Appellant notes that the Examiner has failed to meet the burden of illustrating how Stanton in view of Maeda discloses each and every element of claims 35 and 36. As provided in 37 C.F.R. 1.104(c) (2), the Examiner must designate the particular part of a reference as nearly as practicable. However, with respect to claims 35 and 36, the Examiner has failed to do so. To the extent the Examiner provided support for the assertion that Stanton in view of Maeda discloses each and every element of claims 35 and 36, the Examiner provided that:

Maeda discloses a telemetry communication device that includes a substantially closed loop antenna 2 that defines a substantially central aperture and a battery 1 that is positioned such that it is in substantial alignment with the aperture.⁶⁷

The Examiner does not explain whether Stanton or Maeda describe or illustrate a space between an antenna and circuit board that is substantially filled by a battery bay extending into the antenna aperture.

If the Examiner was relying on the assertion that "it would have been obvious to one having ordinary skill in the art to try the finite number of different configurations of antenna and battery described and illustrated by Maeda in order to ascertain the optimum characteristics for the device"⁶⁸ to support the conclusion that claims 35 and 36 are obvious over Stanton in view of Maeda, the rejection of claims 35 and 36 was still improper. As established above, the Examiner appears to be applying an improper "obvious to try" rationale. Neither Stanton nor Maeda

⁶⁷ *Id.* at p. 5, item 10.

⁶⁸ *Id.* at p. 5, item 10.

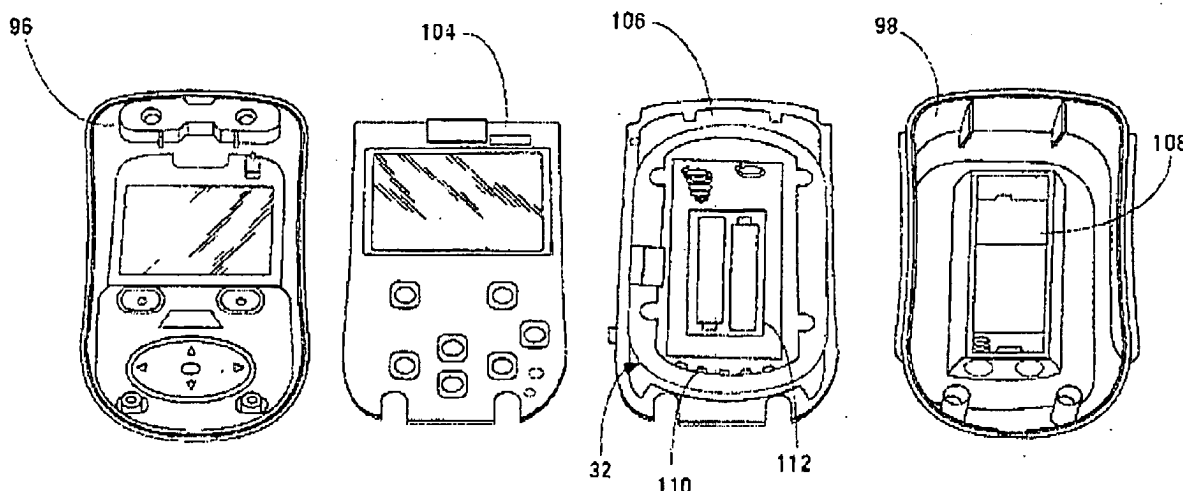
provide any indication that the configuration between the antenna 2 and the battery 1 is critical to any function of the Maeda communication device. Accordingly, there is no reasonable basis for concluding that it would have been obvious to arrive at the medical device programmer of claims 35 and 36 by merely varying the configuration between the antenna 2 and battery 1

While Maeda discloses that its communication device includes a circuit plate 3, it does not necessarily follow that the battery 1 fills a space between the antenna 2 and circuit plate 3. For example, Maeda does not disclose or suggest that the battery 1 extends at least partially into an aperture defined by the antenna 2. For at least these reasons, Stanton in view of Maeda fails to disclose or suggest the elements of Appellant's claims 35 and 36, and the Examiner's rejection of claims 35 and 36 should be reversed.

Dependent Claims 39 and 40

Dependent claims 39 and 40, which depend from claim 1, specify that an internal antenna defines a substantially closed loop, and that the aperture defined by the internal antenna is substantially central within the closed loop. In support of the rejection of the claims, the Examiner characterized the antenna 2 in Maeda as a "substantially closed loop antenna" that defines a substantially central aperture. Appellant respectfully disagrees with the Examiner's interpretation of a substantially closed loop antenna.

FIG. 11 of Appellant's originally-filed disclosure, reproduced below, illustrates an internal antenna 32 that has a substantially closed loop structure 110 that defines a central aperture 112.

**FIG. 11**

In contrast, as FIG. 3 (reproduced above at page 9 of this Brief) of Maeda clearly illustrates, the antenna 2 of the Maeda device does not define a substantially closed loop or an aperture, much less an aperture that is substantially central within a closed loop. The antenna 2 shown in FIG. 3 of Maeda et al. merely defines a slot, which is not a closed loop.

For at least these reasons, the Examiner has failed to establish a prima facie case for obviousness of Appellant's claims 2, 4-9, 11, 13, 15-20, 22-28, and 30-40 under 35 U.S.C. § 103(a). Reversal of this rejection is respectfully requested.

Second Ground of Rejection Under Appeal

Claims 12 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stanton in view of Maeda in further view of Mann. Claim 12 depends from claim 1 and claim 29 depends from independent claim 19. Mann fails to cure any deficiencies in the Stanton and Mann references. For at least the reasons given above with respect to independent claims 1 and 19, claims 12 and 29 are patentable over Stanton in view of Maeda in further view of Mann. Reversal of the rejection of claims 12 and 29 under 35 U.S.C. § 103(a) is respectfully requested.

Third Ground of Rejection Under Appeal

Claims 39 and 40 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention. Specifically, the Examiner stated that the term “substantially” in claims 39 and 40 is a relative term which renders the claims definite. The Examiner reasoned that it is unclear from the claims and Appellant’s specification as to what constitutes a substantially closed loop or what would make an aperture substantially central.

It is well established that the claim term “substantially” does not render claims indefinite. For example, the Court of Appeals for the Federal Circuit has found that when the term “substantially” serves reasonably to describe the subject matter so that its scope would be understood by persons in the field of the invention, and to distinguish the claimed subject matter from the prior art, the use of the claim term “substantially” does not render the claim indefinite. In *Verve v. Crane Cams, Inc.*, the court found the claim term, “substantially constant wall thickness” was definite under 35 U.S.C. § 112, second paragraph, despite a failure of the specification to define the term, because the term would be understood by persons skilled in the art.⁶⁹ The Federal Circuit reasoned that:

Expressions such as “substantially” are used in patent documents when warranted by the nature of the invention, in order to accommodate the minor variations that may be appropriate to secure the invention. Such usage may well satisfy the charge to “particularly point out and distinctly claim” the invention, 35 U.S.C. §112, and indeed may be necessary in order to provide the inventor with the benefit of his invention.⁷⁰

In Appellant’s claims 12 and 29, the use of the term “substantially” reasonably describes the claimed subject matter, and one skilled in the art would understand the scope of claims 12 and 29. For at least these reasons, reversal of the rejection of claims 12 and 29 under 35 U.S.C. § 112, second paragraph is respectfully requested.

⁶⁹ *Verve v. Crane Cams, Inc.*, 311 F.3d 1116, 65 U.S.P.Q.2d 1051 (Fed. Cir. 2002).

⁷⁰ *Id.*, 311 F.3d at 1119, 65 U.S.P.Q.2d at 1054.

CONCLUSION

The Examiner has failed to meet the burden of establishing a prima facie case of obviousness with respect to claims 1, 2, 4-9, 11-13, 15-20, and 22-40. In view of Appellant's arguments, the rejection of claims 1, 2, 4-9, 11-13, 15-20, and 22-40 is improper and should be reversed, and all of the pending claims should be allowed. Appellant respectfully requests separate review by the Board for each of the grounds of rejection addressed above under separate headings.

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APPENDIX A
THE CLAIMS ON APPEAL

1. A programmer for a medical device comprising:
an internal antenna mounted within a programmer housing, wherein the internal antenna defines an aperture; and
a battery bay that extends into the programmer in substantial alignment with the aperture, wherein the battery bay extends at least partially into the aperture.
2. The programmer of claim 1, wherein the battery bay is oriented such that batteries placed in the battery bay present a load to the internal antenna.
4. The programmer of claim 1, wherein the battery bay is sized to accommodate AAA batteries.
5. The programmer of claim 1, further comprising:
a first housing member;
a first circuit board within the first housing member;
a second circuit board disposed over the first circuit board within the first housing member; and

a second housing member disposed over the second circuit board to substantially enclose the first and second circuit boards, wherein the first housing member includes a molded area that defines the battery bay adjacent the first circuit board.

6. The programmer of claim 5, further comprising an access opening in the first housing member to gain access to the battery bay for placement of batteries within the battery bay.

7. The programmer of claim 5, wherein the internal antenna is displaced from the first circuit board and coupled to the first circuit board via a connector.

8. The programmer of claim 5, wherein the internal antenna is mounted to the first circuit board on a side of the first circuit board opposite the second circuit board, and a display is mounted to the second circuit board on a side of the second circuit board opposite the first circuit board.

9. The programmer of claim 8, wherein the first circuit board includes telemetry circuitry and the second circuit board includes control circuitry to control the display and the telemetry circuitry, the programmer further comprising an electrical interface between the first and second circuit boards.

11. The programmer of claim 9, wherein the medical device is an implantable neurostimulator, and wherein the telemetry circuitry transmits signals to the implantable neurostimulator via the antenna and processes signals received from the implantable neurostimulator via the antenna.
12. The programmer of claim 9, wherein the display is a liquid crystal display.
13. The programmer of claim 1, further comprising an external antenna coupled to the programmer via a cable.
15. The programmer of claim 1, wherein the internal antenna comprises a plastic frame wound with conductive winding.
16. The programmer of claim 15, wherein the internal antenna comprises copper braid shielding substantially surrounding the plastic frame and the conductive winding.
17. The programmer of claim 1, wherein the internal antenna comprises a loop-like shape that defines the aperture.
18. The programmer of claim 1, wherein the medical device is an implantable neurostimulator.

19. A programmer for a medical device comprising:

a programmer housing;

an internal antenna mounted within the programmer housing, wherein the internal antenna defines an aperture; and

a battery bay formed within the programmer housing, the battery bay being aligned substantially concentrically with the aperture, wherein the battery bay extends at least partially into the aperture.

20. The programmer of claim 19, wherein the battery bay is oriented such that batteries placed in the battery bay present a load to the internal antenna.

22. The programmer of claim 19, wherein the battery bay is sized to accommodate AAA batteries.

23. The programmer of claim 19, further comprising:

a first housing member;

a first circuit board within the first housing member;

a second circuit board disposed over the first circuit board within the first housing member; and

a second housing member disposed over the second circuit board to substantially enclose the first and second circuit boards, wherein the first housing member includes a molded area that defines the battery bay adjacent the first circuit board.

24. The programmer of claim 23, further comprising an access opening in the first housing member to gain access to the battery bay for placement of batteries within the battery bay.

25. The programmer of claim 23, wherein the internal antenna is displaced from the first circuit board and coupled to the first circuit board via a connector.

26. The programmer of claim 23, wherein the internal antenna is mounted to the first circuit board on a side of the first circuit board opposite the second circuit board, and a display is mounted to the second circuit board on a side of the second circuit board opposite the first circuit board.

27. The programmer of claim 26, wherein the first circuit board includes telemetry circuitry and the second circuit board includes control circuitry to control the display and the telemetry circuitry, the programmer further comprising an electrical interface between the first and second circuit boards.

28. The programmer of claim 26, wherein the medical device is an implantable neurostimulator, and wherein the telemetry circuitry transmits signals to the implantable neurostimulator via the antenna and processes signals received from the medical device via the antenna.

29. The programmer of claim 26, wherein the display is a liquid crystal display.

30. The programmer of claim 19, further comprising an external antenna coupled to the programmer via a cable.

31. The programmer of claim 19, wherein the internal antenna comprises a plastic frame wound with conductive winding.

32. The programmer of claim 31, wherein the internal antenna comprises copper braid shielding substantially surrounding the plastic frame and the conductive winding.

33. The programmer of claim 19, wherein the internal antenna comprises a loop-like shape that defines the aperture.

34. The programmer of claim 19, wherein the medical device is an implantable neurostimulator.

35. The programmer of claim 1, wherein the antenna is mounted to a circuit board, and a space between the antenna and the circuit board is substantially filled by the battery bay extending into the antenna aperture.

36. The programmer of claim 19, wherein the antenna is mounted to a circuit board, and a space between the antenna and the circuit board is substantially filled by the battery bay extending into the antenna aperture.

37. A programmer for a medical device comprising:
a first housing member;
a first circuit board within the first housing member;
an internal antenna that defines an aperture mounted to the first circuit board;
a battery bay formed in the first housing member adjacent the first circuit board that extends into the programmer in substantial alignment with the aperture of the internal antenna,

wherein the battery bay is aligned substantially concentrically with the aperture, and extends at least partially into the aperture;

an access opening in the first housing member to gain access to the battery bay for placement of batteries in the battery bay;

a second circuit board disposed over the first circuit board within the first housing member; and

a second housing member disposed over the second circuit board to substantially enclose the first and second circuit boards.

38. The programmer of claim 1, further comprising a telemetry interface coupled to the internal antenna, wherein the telemetry interface drives the internal antenna to transmit instructions to the medical device and processes signals received from the medical device via the internal antenna.

39. The programmer of claim 1, wherein the internal antenna defines a substantially closed loop.

40. The programmer of claim 39, wherein the aperture defined by the internal antenna is substantially central within the closed loop.

**APPENDIX B
EVIDENCE**

None.

**APPENDIX C
RELATED PROCEEDINGS**

None.